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UTILITY PATENT APPLICATION TRANSMITTAL UNDER 37 C.F.R. §1.53(b)

ASSISTANT COMMISSIONER FOR PATENTS

Box PATENT APPLICATION

Washington D.C. 20231

Case Docket No.: K-210

Sir:

Transmitted herewith for filing is the patent application of
INVENTOR OR APPLICATION IDENTIFIER: Jae Woo Ko

FOR: METHOD FOR DISPLAYING RESERVATION GUIDE/CONFIRMATION SCREEN IN A TV

Enclosed are:

1. [X] 18 pages of specification, claims, abstract
2. [X] 7 sheets of FORMAL drawing.
3. [X] 2 pages of newly executed Declaration & Power of Attorney (original).
4. [X] Priority Claimed to Korean Appln. No.35167/1999 filed on August 24, 1999 whose entire disclosure is incorporated herein by reference.
5. [] Small Entity Statement.
6. [] Information Disclosure Statement, Form PTO-1449 and reference.
10. [X] Authorization under 37 C.F.R. §1.136(a)(3).
11. [X] Other: Preliminary amendment
7. [X] Assignment Papers for LG Electronics Inc. (cover sheet, assignment & assignment fee).
Certified copy of Korean Patent Application No. 35167/1999 filed on August 24, 1999
9. [X] Two (2) return postcards.
[X] Stamp & Return with Courier.
[X] Prepaid Postcard-Stamped Filing Date & Returned with Unofficial Serial Number.

CLAIMS AS FILED

For	No. Filed		No. Extra	Rate	Fee
Total Claims	12	- 20	0	X \$18.00	\$0.00
Indep. Claims	1	- 3	0	X \$78.00	\$0.00
Multiple Dependent Claims (If applicable)				X \$260.00	\$0.00
				BASIC FEE	\$690.00
				TOTAL FILING FEE	\$690.00

- [] This is a Continuation-in-part (CIP) of prior application No: _____ filed _____. Incorporation By Reference-The entire disclosure of the prior application is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.

[] Amend the specification by inserting before the first line the sentence:

-This application is a continuation-in-part of Application Serial No. _____ filed _____.

- [X] A check in the amount of \$690.00 Check # 9205 is attached.
- [] Please charge my Deposit Account No. 16-0607 in the amount of \$____. A duplicate copy of this sheet is enclosed.
- [X] The Commissioner is hereby authorized to charge payment of the following fees associated with this communication or credit any overpayment to Deposit Account No. 16-0607. A duplicate copy is enclosed.
- [X] Any additional filing fees required under 37 C.F.R. 1.16.
- [X] The Commissioner is hereby authorized to charge payment of following fees during the pendency of this application or credit any overpayment to Deposit Account No. 16-0607. A duplicate copy of this sheet is enclosed.
- [X] Any patent application processing fees under 37 C.F.R. 1.17.
- [X] Any filing fees under 37 C.F.R. 1.16 for presentation of extra claims.

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Date: August 22, 2000

Docket No.: K-210

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of :

Jae Woo Ko :

Serial No. New U.S. Patent Application :

Filed: August 22,2000 :

For: METHOD FOR DISPLAYING RESERVATION
GUIDE/CONFIRMATION SCREEN IN A TV

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D. C. 20231

Sir:

Prior to initial examination on the merits, please amend the above-identified application as follows:

IN THE CLAIMS:

Please amend claims 7 as follows:

Claim 7, line 1, delete "or 6"

REMARKS

Claims 1-12 are pending. Claims 7 have been amended to eliminate the multiple dependency. Prompt examination and allowance in due course are respectfully solicited.

Respectfully submitted,
FLESHNER & KIM, LLP

Daniel Y.J. Kim
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A large, stylized handwritten signature in black ink, consisting of several overlapping loops, is written over the typed name and registration number.

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Date: August 22, 2000

**METHOD FOR DISPLAYING RESERVATION GUIDE/CONFIRMATION
SCREEN IN A TV**

BACKGROUND OF THE INVENTION

Field of the Invention

5 The present invention relates to a TV, and more particularly
to a method for displaying a reservation guide/confirmation
screen in a tv.

Background of the Related Art

10 Generally, a TV tunes a broadcasting signal transmitted from
a broadcasting station in accordance with a user's selection and
displays the broadcasting signal on a screen. With development
of multimedia technologies, the TV trends to digital mode instead
of analog mode. In this respect, standard guidelines of
15 interactive services such as on-line game service and video on
demand service are provided, and system makers are actively
studying on technologies of interface between users and
interactive services.

20 A tv receiver or Internet TV which is being currently
developed provides graphic user interface (GUI) having the same
level as a personal computer.

As an example of the GUI, electronic program guide service
that acts as a guide information screen for broadcasting programs

displays a user's desired programs for respective broadcasting stations on a screen depending on factors such as date and time. This service is one of technical fields which require technology development to enhance users' convenience in response to
5 complexity and variety of digital channels.

A related art tv and a related art method for displaying a reservation guide screen will be described with reference to the accompanying drawings.

Fig. 1 is a block diagram showing a related art tv, Fig. 2
10 shows a program guide screen of the related art tv, and Fig. 3 shows a reservation confirmation screen of the related art tv.

As shown in Fig. 1, the related art tv includes a tuner 11 for selecting a user's desired broadcasting channel, a demultiplexer 12 for demultiplexing a broadcasting signal
15 selected by the tuner 11, i.e., a temporally multiplexed transport stream, a video signal processor 13 for processing broadcasting information demultiplexed by the demultiplexer 12, a program guide screen generator 14 for receiving program guide information from the demultiplexed broadcasting information and
20 generating an OSD type program guide screen, a switching portion 15 for selectively outputting the output of the video signal processor 13 or the output of the program guide screen generator 14, a display portion 16 for displaying the output of the switching portion 15 on a screen, a memory 17 for storing
25 information generated from the program guide screen generator 14,

a key input portion 19 for inputting request command of the user, and a controller 18 for controlling the operation of respective elements of the TV in accordance with the input request command.

The operation of the aforementioned tv will be described.

5 The transport stream tuned by the tuner 11 is demultiplexed by the demultiplexer 12 and divided into broadcasting information and specific information containing program guide information. The specific information containing program guide information is stored in a corresponding portion of the memory 17 under the control of the controller 18.

10 Subsequently, the broadcasting information is processed by the video signal processor 13 and displayed on the screen by the display portion 16 through the switching portion 15.

15 Meanwhile, if the user requests to output the program guide screen by manipulating the key input portion 19, i.e., a remote controller or key of a main body, the controller 18 reads out the program guide screen information stored in the memory 17 and transmits the information to the program guide screen generator 14.

20 Afterwards, the program guide screen generator 14 processes the program guide screen information transmitted from the controller 18 in OSD so as to display the information through the switching portion 15 and the display portion 16.

25 If the user desires to set reservation recording/viewing, the user selects the reservation recording/viewing referring to

the broadcasting guide information displayed through the display portion 16.

As shown in Fig. 2, the related art program guide screen on which a corresponding program title is arranged using a horizontal direction as a temporal axis and a vertical direction
5 as a channel axis is displayed in OSD.

Meanwhile, if the user desires to set reservation recording/viewing, the user selects a desired channel using the key input portion 16 referring to the program list displayed
10 depending on channel and time, or clicks a cursor of a mouse on a corresponding program title.

To confirm the set reservation recording/viewing, a reservation confirmation mode is selected. Then, as shown in Fig. 3, a reservation confirmation screen is displayed.

As shown in Fig. 3, the reservation confirmation screen for reservation recording or reservation viewing according to the related art TV is one-dimensionally displayed by displaying order of reservation recording/viewing on a vertical axis and a corresponding channel number, a channel name, a program title of
15 a channel and reservation time on a horizontal axis.

As aforementioned, the related art tv and the related art method for displaying a reservation confirmation screen have a problem. That is, since a reservation list cannot be displayed on one screen in the order of channels, the reservation list
20 should be searched one by one to confirm whether a program to be

reserved temporally overlaps a reserved program.

SUMMARY OF THE INVENTION

Accordingly, the present invention is directed to a method for displaying a reservation guide/confirmation screen in a tv
5 that substantially obviates one or more of the problems due to limitations and disadvantages of the related art.

An object of the present invention is to provide a method for displaying a reservation guide/confirmation screen in a tv
in which a reservation guide screen and a reservation
10 confirmation screen are displayed in a timetable familiar with a user when the user selects reservation viewing or reservation recording, so that the user can easily search for it.

Additional features and advantages of the invention will be set forth in the description which follows, and in part will be
15 apparent from the description, or may be learned by practice of the invention. The objectives and other advantages of the invention will be realized and attained by the structure particularly pointed out in the written description and claims hereof as well as the appended drawings.

20 To achieve these and other advantages and in accordance with the purpose of the present invention, as embodied and broadly described, a method for displaying a reservation guide screen in a tv according to the present invention includes the steps of: displaying a reservation guide screen if a user selects a

reservation mode, setting the user's desired reservation state using a predetermined key on the reservation guide screen, and displaying a reservation confirmation screen if the user selects a reservation confirmation mode.

5 It is to be understood that both the foregoing general description and the following detailed description are exemplary and explanatory and are intended to provide further explanation of the invention as claimed.

BRIEF DESCRIPTION OF THE DRAWINGS

10 The accompanying drawings, which are included to provide a further understanding of the invention and are incorporated in and constitute a part of this specification, illustrate embodiments of the invention and together with the description serve to explain the principles of the invention.

15 In the drawings:

Fig. 1 is a block diagram showing a related art tv;

Fig. 2 shows a program guide screen of the related art tv;

Fig. 3 shows a reservation confirmation screen of the related art tv;

20 Fig. 4 is a flow chart showing a method for displaying a reservation guide/reservation confirmation screen in a tv according to the present invention;

Fig. 5 shows a reservation guide screen in the tv according to the present invention;

Fig. 6 shows a reservation confirmation screen in the tv according to the present invention; and

Fig. 7 shows an embodiment of the tv according to the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Reference will now be made in detail to the preferred embodiments of the present invention, examples of which are illustrated in the accompanying drawings.

A method for displaying a reservation guide/confirmation screen in a tv according to the present invention will be described with reference to Fig. 4.

Referring to Fig. 4, it is determined whether a reservation viewing/recording key signal has been applied (S1). As a result of the determination (S1), if the reservation viewing/recording key signal has been applied, a reservation guide screen is displayed (S2).

It is then determined whether an up/down key signal or a left/right key signal has been applied on the reservation guide screen (S3). As a result, if the up/down key signal or the left/right key signal has been applied, a curser moves in accordance with the up/down key signal or the left/right key signal (S4).

Meanwhile, as a result of the determination (S3), if the up/down key signal or the left/right key signal has not been

applied, a desired time and a desired day are selected using a selection key (S5).

Subsequently, a program list corresponding to the selected time and day is output (S6). It is determined whether the up/down
5 key signal has been applied on the output program list (S7).

If the up/down key signal has been applied, the cursor moves to a desired program using up/down keys (S8).

Meanwhile, if the up/down key signal has not been applied, it is determined whether the left/right key signal has been
10 applied (S9). As a result, if the left/right key signal has been applied, a reservation state of the desired program is set (S10). However, if the left/right key signal has not been applied, it is determined whether a confirmation key signal has been applied (S11).

15 As a result of the determination (S11), if the confirmation key signal has been applied, it is determined whether consecutive recording has been selected (S12).

If the consecutive recording has been selected, a corresponding program title and a content set in day and temporal
20 axes are displayed by identifying them by color, and whether to perform consecutive recording is displayed on a lower part of the program in which consecutive recording is set (S13).

Meanwhile, as a result of the determination (S12), if consecutive recording has not been selected, a corresponding
25 program title and a content set in day and temporal axes are only

displayed by identifying them by color (S14).

A preferred embodiment of the aforementioned method for displaying a reservation guide/confirmation screen in a tv according to the present invention will be described with reference to Figs. 5 to 7.

As shown in Fig. 5, a reservation guide screen of the tv according to the present invention includes a matrix screen based on a date axis in a horizontal direction and a temporal axis in a vertical direction when a user selects a reservation mode, a time page list 101 indicating time range including current time selected by the user, a reservation time display portion 102 for displaying reservation time set by the user, a time zone 103 for displaying the user's desired day and time, icons 104 for setting reservation state of the user's desired program, and an arrow 105 for displaying the presence of successive programs if all programs of a corresponding time zone are not displayed on one screen.

If the user selects a specific day and specific time, a program list is displayed on the center of the matrix screen. The icons 104 are simultaneously displayed on the program list to select reservation recording or reservation viewing of each program.

The icons 104 are consisted of four icons for reservation recording, reservation viewing, simultaneous selection of reservation recording and reservation viewing, and cancellation.

The user can select a desired mode by selecting a desired icon from the icons 104 displayed on the respective program list.

The time page list 101 divides 24 hours into 6 to display the time page numbers from 1 to 6, supposing that the user regards the time range as 4 hours. For example, if the user selects the page number 6, the timetable from 8:00, p.m. to midnight can be displayed so that the user can adjust the time zone corresponding to each page. That is to say, if the page number 1 is set from 0:00, a.m. to 4:00, a.m., the page number 2 is set from 4:00, a.m. to 8:00, a.m. In another case, if the page number 1 is set from 2:00, a.m. to 6:00, a.m., the next page number is automatically set from 6:00, a.m. to 10:00, a.m.

In the present invention, the reservation time display portion 102 displays the user's desired reservation time for the unit of week. Alternatively, a desired reservation time may be set at the user's option.

As described above, if the user desires to reserve a program at 11:30 on June 1 on the reservation guide screen, the user selects a column where date, June 1 in a horizontal axis crosses time 11:30 in a vertical axis. Then, the program list of all the channels to be broadcasted at 11:30 on June 1 is displayed on a sub screen at the center of the reservation guide screen.

At this time, the user moves a cursor to a desired channel program referring to the displayed program list and selects one of reservation recording, reservation viewing, simultaneous

selection of reservation recording and reservation viewing, and cancellation, which are displayed simultaneously with the program list.

The user reaches a desired reservation program on the
5 program list using up/down direction keys and selects the icon using left/right direction keys or a mouse.

After reservation viewing or reservation recording is set as above, the user enters a confirmation key. Then, as shown in Fig. 6, day is displayed on a horizontal axis, a time zone including time selected by the user is displayed on a vertical
10 axis, and a program title corresponding to the day and time selected by the user is displayed. At this time, respective program titles are displayed by different colors so that the user can distinguish the program titles from one another in accordance
15 with reservation viewing or reservation recording.

If the user sets "master-piece theater" starting from 11:00, p.m. on Monday, "world news" running between 10:00, p.m. and 10:30, p.m. on Tuesday, and "headline news" between 8:00, p.m. and 9:00, p.m. on Friday as reservation viewing programs, a
20 column where a corresponding day crosses a corresponding time is displayed by green color.

Furthermore, if "titanic" running to 10:30, p.m. on Wednesday is set for reservation recording, a corresponding column is displayed by violet color. If "Simpson" running between
25 10:00, p.m. and 11:00, p.m. on Friday is set for reservation

viewing and reservation recording, a corresponding column is displayed by blue color.

The user can set a reference date of a currently viewing reservation confirmation screen by displaying date of today on
5 a left top of the reservation confirmation screen.

If the consecutive recording program selected by the user exists on the reservation confirmation screen displayed in a timetable, an arrow 116 indicating whether to perform consecutive recording is displayed on a lower portion of a corresponding
10 program, as shown in Fig. 7.

In other words, if the user desires to select "world news" running from 10:00, p.m. to 10:30, p.m. on Tuesday as a reservation viewing program everyday from June 1 to June 7, an arrow 116 is displayed on the lower portion of the program
15 "world news".

As aforementioned, a method for displaying a reservation guide/confirmation screen in a tv has the following advantages.

In the reservation mode, day or date is displayed on a horizontal axis and a user's desired time zone is displayed on a
20 vertical axis in a two-dimensional timetable. Therefore, the user can easily recognize a reservation guide/confirmation screen. Furthermore, since reservation can be set and confirmed on the screen of two-dimensional timetable type using a mouse or key, convenience can be provided to the user.

25 The foregoing embodiments are merely exemplary and are not

to be construed as limiting the present invention. The present teachings can be readily applied to other types of apparatuses. The description of the present invention is intended to be illustrative, and not to limit the scope of the claims. Many
5 alternatives, modifications, and variations will be apparent to those skilled in the art.

What is claimed is:

1. A method for displaying a reservation guide/confirmation screen in a tv, the method comprising the steps of:

displaying a reservation guide screen if a user selects a
5 reservation mode;

setting the user's desired reservation state using a predetermined key on the reservation guide screen; and

displaying a reservation confirmation screen if the user selects a reservation confirmation mode.

10 2. The method of claim 1, wherein the step of displaying the reservation guide screen includes the steps of displaying date selected by the user on a horizontal axis, displaying a time zone selected by the user on a vertical axis at a certain interval, displaying a time page number list on a left top, and displaying
15 a reservation time on a right top.

3. The method of claim 1, wherein the step of setting the user's desired reservation state includes the steps of selecting a desired date and a desired time using the predetermined key, displaying a program list corresponding to the selected date and
20 time zone, and setting whether to perform reservation recording or reservation viewing on the program list.

4. The method of claim 3, wherein the step of displaying the program list includes the step of simultaneously displaying icons for selecting each channel number corresponding to the date and time zone selected by the user, a broadcasting station name, a program title, and reservation recording or reservation viewing of each channel.

5. The method of claim 4, wherein the step of displaying the program list includes the step of displaying a channel number corresponding to the date and time zone selected by the user, a broadcasting station name, and a program title on a sub screen at the center of the reservation guide screen.

6. The method of claim 3, wherein the predetermined key includes up/down keys and left/right keys.

7. The method of claim 3 or 6, wherein the step of setting the reservation recording or reservation viewing state includes the steps of moving a cursor to the user's desired program on the program list using the up/down keys, and selecting the reservation recording or reservation viewing state on the user's desired program using the left/right keys.

8. The method of claim 1, wherein the step of displaying the reservation confirmation screen includes the steps of displaying

a day on a horizontal axis, displaying a time zone on a vertical axis at a certain interval, and displaying a reservation state of a program selected by the user at the day and corresponding time selected by the user in a timetable type.

5 9. The method of claim 8, wherein the step of displaying the reservation state of the program selected by the user includes the step of displaying a set state of the reservation recording or reservation viewing program selected by the user on a portion where the corresponding day crosses the corresponding time zone.

10 10. The method of claim 8, wherein the step of displaying the reservation state of the program in a timetable type includes the step of displaying a background of a portion where the corresponding program title is displayed at the day and time zone selected by the user, by different colors in accordance with
15 reservation viewing, reservation recording, and simultaneous selection of the reservation viewing and the reservation recording.

 11. The method of claim 8, wherein the step of displaying the reservation confirmation screen further includes the step of
20 displaying consecutive reservation on a lower portion of the corresponding program if the user selects the consecutive reservation on the reservation confirmation screen of the

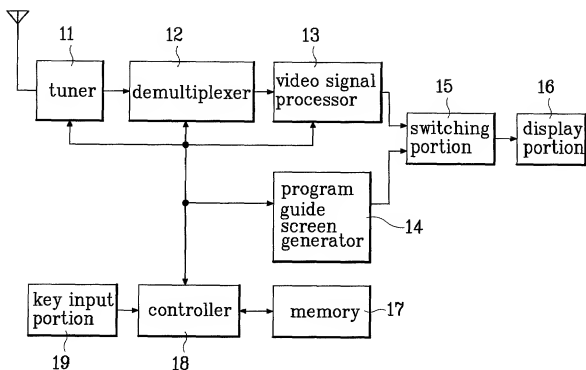
timetable type.

12. The method of claim 11, wherein the step of displaying the consecutive recording on the lower portion of the corresponding program includes the step of displaying a separate
5 symbol on a lower portion of the portion where the corresponding day crosses the corresponding time zone.

ABSTRACT OF THE DISCLOSURE

A method for displaying a reservation guide/confirmation screen in a tv includes the steps of: displaying a reservation guide screen if a user selects a reservation mode, setting the user's desired reservation state using a predetermined key on the reservation guide screen, and displaying a reservation confirmation screen if the user selects a reservation confirmation mode. In the reservation mode, day or date is displayed on a horizontal axis and a user's desired time zone is displayed on a vertical axis in a two-dimensional timetable. Therefore, the user can easily recognize a reservation guide/confirmation screen. Furthermore, since reservation can be set and confirmed on the screen of two-dimensional timetable type using a mouse or key, convenience can be provided to the user.

FIG.1
Prior Art



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New U.S. Patent Application
Filed: August 22, 2000
Title: METHOD FOR DISPLAYING RESERVATION
GUIDE/CONFIRMATION SCREEN IN A TV
Inventor: Jae Woo Ko
Docket No. K-210
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FIG.2

Prior Art

Program Guide		15-01 HBO		TITANIC		RATED R(V,A) 0:30 - 13:50	
11:37 pm		BACK		HELP		TIME	
		12:00 pm		12:30 pm		1:00 am	
		11:30 am		1:30 am		2:00 am	
13:01 WNET		MASTERPIECE THEATRE					
12:00 NBCW		WORLD NEWS					
15:01 HBO		TITANIC					
16:01 CNN		HEAD LINE					
17:03 WXYZ		THE SIMPSONS					
18:01 MSG		NBA FINALS					
18:02 TBS		THE MAN WHO SHOT THE					
19:01 EI		FLUBBER					
20:00 DISC		ANIMAL KINGDOM					
		<input type="button" value="◁"/> <input type="button" value="▷"/>		<input type="button" value="◁"/> <input type="button" value="▷"/>		<input type="button" value="◁"/> <input type="button" value="▷"/>	
FULL.JPG							

FIG.3
Prior Art

today : 99. 6. 1(monday)

reservation viewing/
recording screen

	channel	title	reservation time
1	13-01 WNET	MASTERPIECE THEATRE (reservation viewing)	6.1(Mon.) 11:30~13:30
2	14-00 NBCW	WORLD NEWS (reservation viewing)	6.2(Tue.) 10:00~10:30
3	15-01 HBD	TITANIC (reservation recording)	6.3(Wed.) 07:00~10:30
4	16-01 CNN	HEADLINE NEWS (reservation viewing)	6.5(Fri.) 08:00~09:00
5	17-01 WXYZ	THE SIMPSONS (simultaneous selection of reservation viewing and reservation recording)	6.5(Fri.) 09:10~10:50
6	18-01 MSG	NBA FINALS (reservation viewing)	6.6(Sat.) 18:00~21:00
7	18-02 TBS	THE MAN WHO SHOT TH (reservation viewing)	6.7(Sun.) 13:00~14:00
8	19-01 E1	FLUBBER (reservation recording)	6.8(Mon.) 11:30~13:30

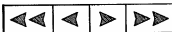


FIG. 4

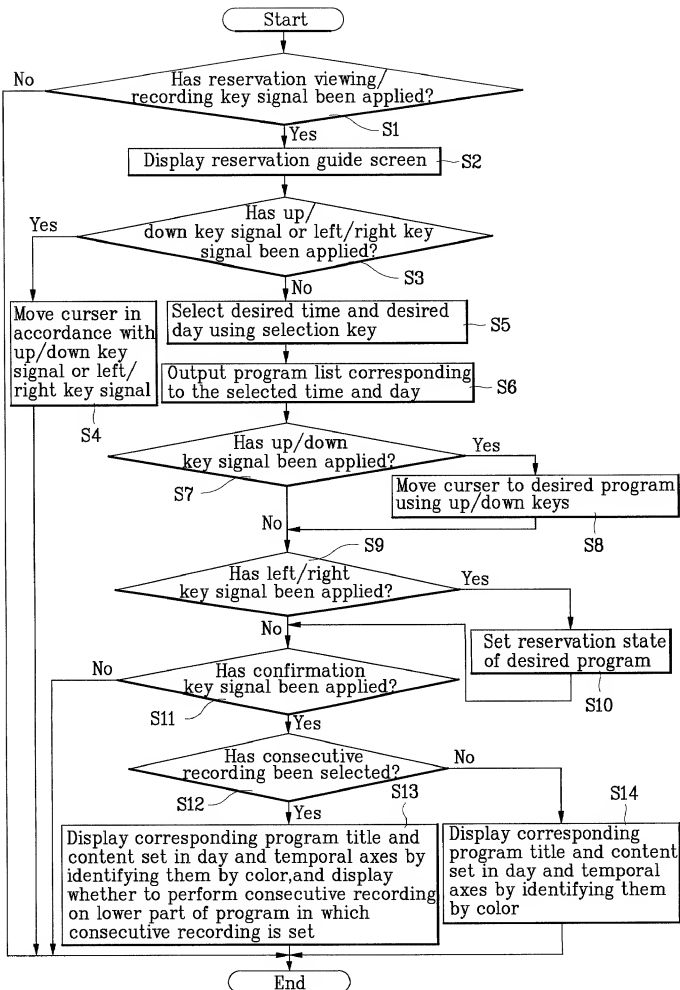


FIG. 5

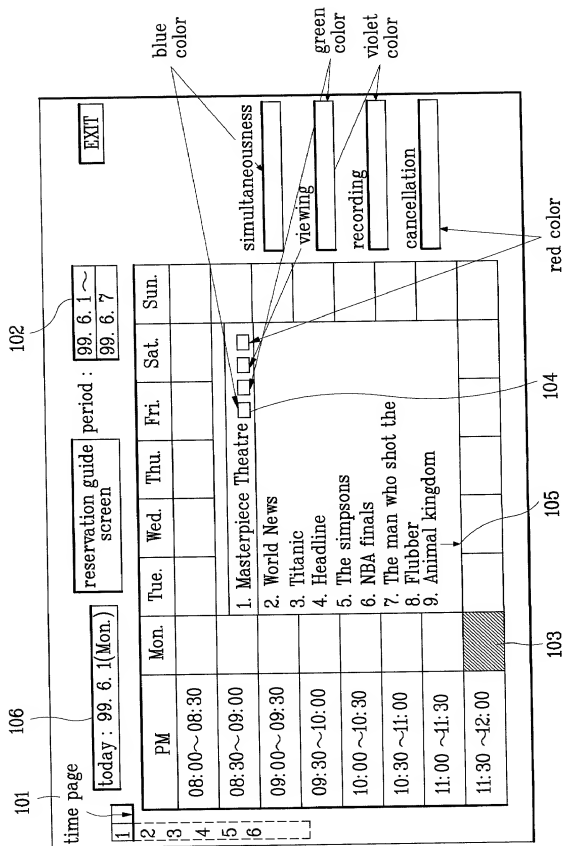


FIG. 6

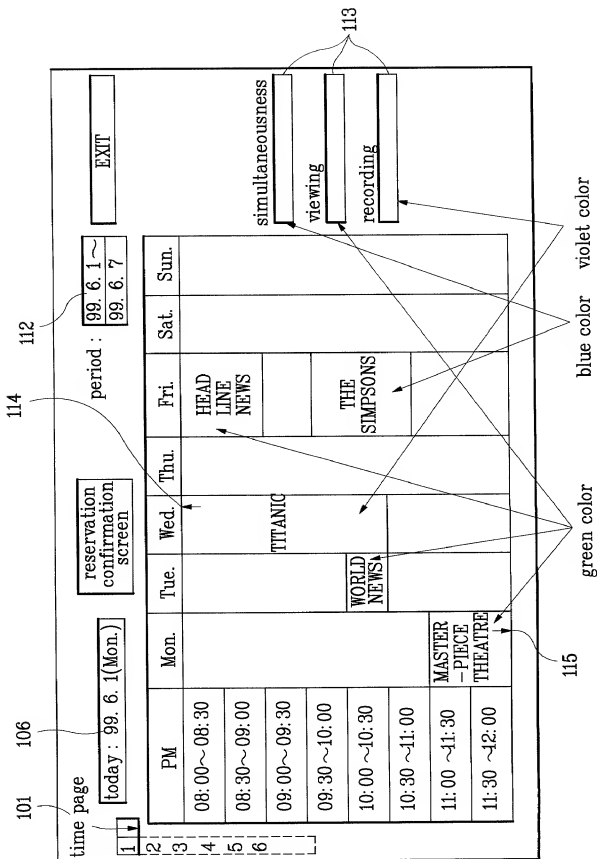
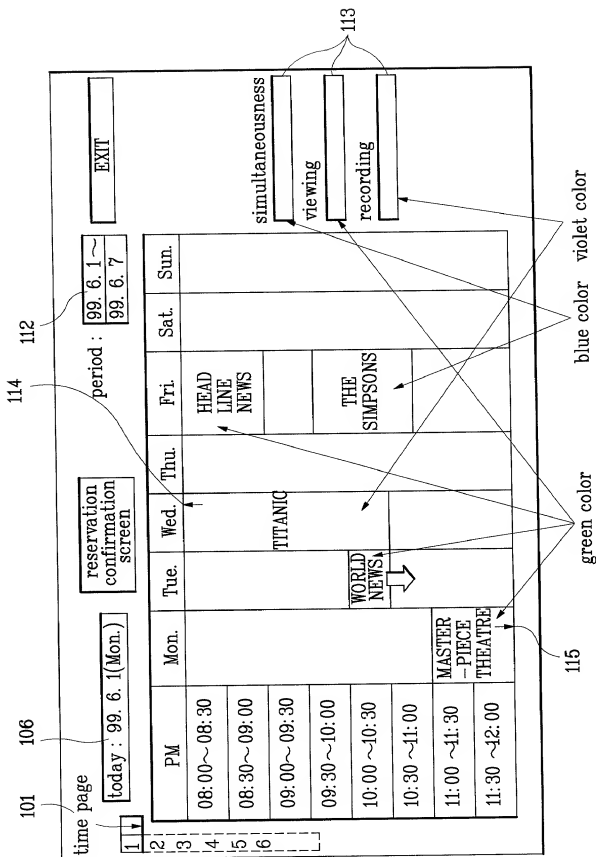


FIG. 7



Docket No.: _____

DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that:

My residence, post office and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter claimed and for which a patent is sought on the invention entitled _____

METHOD FOR DISPLAYING RESERVATION GUIDE/CONFIRMATION SCREEN IN A TV

_____, the specification of which

[X] is attached hereto [] was filed on _____ as Application Serial No _____ and was amended on _____ (if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is known to me to be material to patentability in accordance with Title 37, Code of Federal Regulations, Section 1.56(a).

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or 365 (b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s):

Number

Country

Foreign Filing Date

Month/Day/Year

35167/1999

Korea

August 24, 1999

_____ hereby claim the benefit under 35 U.S.C. 119(e) of any United States provisional application(s) listed below.

Application Number(s):

Filing Date (Month/Day/Year)

I hereby claim the benefit under 35 U.S.C. 120 of any United States application(s), or 365(c) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application in the manner provided by the first paragraph of 35 U.S.C. 112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

**Prior U. S. Application
or PCT Parent Number**

Filing Date (Month/Day/Year)

Parent Patent Number (if applicable)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

I hereby appoint the following attorney(s) and/or agent(s): Daniel Y. Kim, Registration No. 36,186 and Mark I. Fleschner, Registration No. 34,596; Carl R. Wesolowski, Registration No. 40,372; John C. Eisenhart, Registration No. 38,128; Rene A. Vazquez, Registration No. 38,647; Michael J. Cornelison, Registration No. 40,395; and Stuart I. Smith, Registration No. 42,159; and Carol L. Druzbeck, Registration No. 40,287, all of

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with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith, and all future correspondence should be addressed to them.

Full name of sole or first inventor: Jae Woo KO

Inventor's signature: Tae Woo Ko

Date: 2000.8.14

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Kyongsangbuk-do, Korea

Full name of joint inventor(s):

Inventor's signature:

Residence:

Citizenship:

Post Office Address:

Full name of joint inventor(s) :

Inventor's signature :

Residence:

Date :

Citizenship:

Post Office Address:

Full name of joint inventor(s):

Inventor's signature :

Residence:

Date : _____

Citizenship:

Post Office Address::